ADDITIONAL COMMENTS ON THE BROWN & WILLIAMSON SUBMISSION TO THE FTC DATED OCTOBER 23, 1981

(A CONTINUATION OF THE PM COMMENTS DATED NOVEMBER 5, 1981)

The November 5 "Comments" attempted to review and critique the major issues brought up in the October 23 report to the FTC by Brown and Williamson. There are still a number of individual points contained in the documents that bear commenting on, and these will be addressed in this commentary.

A. Professor Kamms' Evaluation of the Puff Profile Analyzer

Our August 26, 1981, visit to the home of Prof. Kamm was specifically for the purpose to allow him to evaluate the technical merits of the PPA. The August 24, 1981, submission by B & W stated that soon after this viewing they would "provide comments on the technical aspects of Philip Morris' presentation." However, in their October 23 submission, Prof. Kamm was not mentioned in regards to the PPA and the only arguments to our use of the PPA were procedural (as covered in our Nov. 5 Comments) rather than any criticism of the machine's ability to accurately measure human dilution levels and puffing parameters. Also, the B & W objection to our use of lab measurements is somewhat weakened when one considers the reliance they put on Professor Kamm's lab obtained human lip pressure measurements.

B. PM Subjects Subverting PPA Data

The B & W charge that the subjects used in the PM studies could have adjusted their puffing patterns on purpose to reduce the dilution on the Barclay is unfounded. It is true that the brand names on the cigarettes used were not masked, but:

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(1) The names are very difficult to see through the holder, and

(2) Even if masked, the Barclay would still have been identifiable due to the end appearance of the filter.

As to the possibility of the subjects using the digital readout as a cue to the effectiveness of their lowering attempts, this was not done because their backs were toward the panel and, in any event, the panel does not read out until after the puff is taken.

C. The PPA Covers The Dilution Holes

The B & W claim that the PPA holder biased the testing by not allowing the smokers to close the ventilating perforations with their fingers or lips is simply a smokescreen. There is no substantial proof that this is a common or even very occasional practice and, in fact, observation of discarded cigarette tips, with the prevalent "white ring" end appearance common to dilution, suggests that this is very rarely done. The Barclay cigarette would also be affected by this practice, and its design, with only a few holes open to the grooves, would "maximize" the effect. Thus, rather than biasing the testing, the holder serves to eliminate a variable that would be common to all cigarettes studied. The prevalence of this practice among smokers is a different subject and not germane to the issue of whether dilution is lowered in the Barclay by lip occlusion of the grooves.

D. Prevalence Of Barclay Filter-Channel Collapse (Or Occlusion)

On Page 43 of their October 23 Submission, B & W states that in answer to the FTC question about the prevalence of filter-channel collapse, R. J. Reynolds replied "that the prevalence rate was unknowable and irrelevant." Reynolds did not make such a statement

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and to infer so, B & W took Mr. Witt's stand in his letter totally out of context. Later on in the RJR submission of September 15, 1981, it was stated that, "In the experiments reported by RJR and Philip Morris, the Barclay ventilation decrease .... was observed for every subject tested (80 total)." We (PM) agree with this statement and at the August 26 PM-B & W-FTC meeting at Kamm's house, B & W staff members and retainers as well as an FTC staff member (Myers) also ~~were agreed~~ observed to reduce dilution significantly.

Change per WEC 11/25/81

E. B & W's "Non-Invasive" Butt Study

In the B & W "Technical Appendix" of October 23, a particular point is made of the "fact" that the B & W butt study is non-invasive as compared to the study conducted by PM. In fact, the only point mentioned as non-invasive in the study by B & W is the collection of freely smoked cigarette butts, the only factor in common between the B & W and PM studies. Thus, it could just have well been said of the PM study and is just another case of B & W trying to confuse the major issue with words.

F. Filter Efficiency and Dilution Differences - Lorillard and B & W

Lorillard's filter efficiency and dilution figures for the Barclay cigarette are obviously based upon lit smoking while B & W's are for unlit. The dilution figures in both cases are in agreement with those determined in our laboratory, while the filter efficiency figures are high in both cases. They are apparently TPM filter efficiency rather than nicotine efficiency which, of course, is the correct measure to use in the treatment of retained nicotine on filters.

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G. B & W's Graph Of Lorillard Human Smoke Delivery Data

The graph plotted on Page 25 of the B & W October 23 Submission is a good example of how to misuse data to prove a non-existent point. The Lorillard study of human tar intake had each of the 20 subjects smoke three products (Carlton, Now and Barclay) and their own brand for reference. B & W ignored the data obtained from those cigarettes smoked in common by all subjects while focusing only on those that were not smoked by the whole group. The study was quite consistent when a smoker's data was compared individually, but obviously comparisons cannot be made between smokers when they are not exposed to each other's brands unless a large number of subjects for each brand were used.

H. Lorillard "Smoke In A Bottle" Test

As stated in (G.) above, the Lorillard human tar collection test was purposely misinterpreted by B & W. Although it certainly has its shortcomings, it is still an interesting and informative study. The main defect in the study, that is that the smoker is not allowed to inhale and possibly adjust his intake to perceived delivery effects, is perhaps in reality sound empirical evidence of how human lips affect the dilution (and delivery) of the Barclay cigarette. It can be argued that the smokers, when not being allowed to inhale, were smoking like a "machine" with their own individual puffing pattern being the standard conditions. Thus, the 3- to 4-fold difference found for Barclay over the 1 mg cigarettes in the study is an indication of the dilution drop and flow rate induced efficiency changes predicted from our PPA data. That this data so closely matches the

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relative deliveries found in our retained nicotine study also suggests that there may not be a large degree of smoker "adjustment" to perceived delivery affects.

I. Figure B, B & W Technical Appendix, September 23, 1981

The Figure B on Page 9 in the B & W Technical Appendix purports to show that puff volume is a more important characteristic of human smoking patterns than puff velocity when predicting delivery from retained nicotine values. This is absolutely untrue as far as the determination of filter efficiency is concerned, the keystone to the PM studies. What B & W is trying to do is confuse delivery vs. puff parameters rather than filter efficiency and tar/nicotine ratios as discussed in our retained nicotine study of July 30 and in further detail in our "Comments" of November 5, 1981.

J. RTD Increase With PM Holder

In the B & W Submission the claim is made that the proposed PM holder increases the draw resistance of Barclay six-fold. This is preposterous! Measurements of draw (actual, not perceived) in our laboratory indicate that the holder increases the draw of Barclay, as well as of all cigarettes no more than 10-20%. It must be remembered that the static draw measured on Barclay with the grooves not occluded is a machine obtained value only, not what the smoker would obtain.

K. PM Retained and Delivered Formulas "Should Not Be Used To Predict Human Values"

B & W's reference to the footnote on Table 4 of PM's retained nicotine study is another case of taking data out of context to confuse

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the issue. The formulas do predict deliveries which then can be used to obtain filter efficiencies and tar/nicotine ratios for human predictions. The footnote merely cautioned that the deliveries obtained from the formulas were not human values in themselves.

L. High Tar Deliveries From Cambridge and Merit

On Page 10 of the B & W Technical Appendix it is stated that "Merit delivered as much as 24 mg 'tar,' and Cambridge as much as 8 mg 'tar,' to Philip Morris' own laboratory employees." In obtaining these figures they calculated the delivery from the highest single subject and neglected to mention that that person obtained 26 mg "tar" from the Barclay. Even in this single case, the Barclay ratio holds up against Cambridge and is very similar to the Merit delivery.

M. Human Smoking vs. Machine Smoking

It is a recurrent theme in the B & W Submission that humans smoke different than machines do and that if the FTC procedure was to be modified for our product it should also be modified specifically for all other products. This is exactly the point that we are not trying to make. Even if "exact" smoking patterns were obtained by testing "enough" smokers of each brand, a dilution modifying holder would still be needed on Barclay type filter cigarettes as the dilution change is common to only this type of cigarette. The rank order of all other cigarettes, even if "real world" patterns were used, would still be basically the same as is now projected from standard FTC smoking, with Barclay and its kin way out of line unless the dilution adjustment is made.

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N. Swirling Smoke and Spacial Summation

From the start, B & W has contended that the swirling smoke pattern exiting the Barclay filter system is responsible for the high taste and impact of the cigarette. However, in response to the PM films of exit smoke from a number of products, they make the statement in a footnote on Page 27 of the October 23 Submission that "it is not a simple 'swirling' that produces Barclay's taste."

O. Cotinine As A Delivery Predictor

The Darby paper asserts that a prediction of delivered nicotine can be derived by measurement of plasma cotinine concentration. Factors that need to be accounted for in this derivation are the fraction of delivered nicotine absorbed by the smoker and the conversion efficiency by the body of absorbed nicotine to plasma cotinine. The former is completely ignored in the Darby model and the latter is mentioned in the text but not used judging by the results in Table 2.

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